

RECEIVED

Please type a plus sign (+) inside this box →

MAY 25 2001
U.S. PATENT & TRADEMARK OFFICE

NOV 03 2003

PTO/SB/8A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

TECH CENTER 1600/2900

Complete if Known

| | | | | | |
|-------|---|----|----|------------------------|-----------------------|
| | | | | Application Number | 09/626,096 |
| | | | | Filing Date | July 26, 2000 |
| | | | | First Named Inventor | Umek, R. |
| | | | | Group Art Unit | 1645 |
| | | | | Examiner Name | Not Yet Assigned |
| Sheet | 1 | of | 11 | Attorney Docket Number | A-68271-2/RFT/RMS/RMK |

U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|--------------------|-----------------------|----------------------|-----------------------------------|---|--|---|
| | | Number | Kind Code ² (if known) | | | |
| | 1 | 4,707,352 | | Stavrianopoulos | 11/1987 | |
| | 2 | 4,707,440 | | Stavrianopoulos | 11/1987 | |
| | 3 | 4,711,955 | | Ward et al. | 12/1987 | |
| | 4 | 4,755,458 | | Rabbani et al. | 7/1988 | |
| | 5 | 4,840,893 | | Hill et al. | 6/1989 | |
| | 6 | 4,849,513 | | Smith et al. | 7/1989 | |
| | 7 | 4,868,103 | | Stavrianopoulos et al. | 9/1989 | |
| | 8 | 4,894,325 | | Englehardt et al. | 1/1990 | |
| | 9 | 4,943,523 | | Stavrianopoulos | 7/1990 | |
| | 10 | 4,952,685 | | Stavrianopoulos | 8/1990 | |
| | 11 | 4,994,373 | | Stavrianopoulos | 2/1991 | |
| | 12 | 5,002,885 | | Stavrianopoulos | 3/1991 | |
| | 13 | 5,013,831 | | Stavrianopoulos | 5/1991 | |
| | 14 | 5,082,830 | | Brakel et al. | 1/1992 | |
| | 15 | 5,175,269 | | Stavrianopoulos | 12/1992 | |
| | 16 | 5,241,060 | | Englehardt et al. | 8/1993 | |
| | 17 | 5,278,043 | | Bannwarth et al. | 1/1995 | |
| | 18 | 5,312,527 | | Mikkelsen et al. | 5/1994 | |

FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
|--------------------|-----------------------|-------------------------|---------------------|---|--|---|----------------|
| | | Office ³ | Number ⁴ | | | | |
| | 19 | EP | 0 234 938 | A2 Cranfield Inst. of Tech. | 2/1987 | | |
| | 20 | EP | 0 229 943 | B1 Molecular Biosystems Inc. | 7/1987 | | |
| | 21 | EP | 0 599 337 | A2 Canon Kabushiki Kaisha | 1/1994 | | |
| | 22 | EP | 0 063 879 | A2 Yale University | 11/1982 | | |
| | 23 | EP | 0 515 615 | Boehringer Nannheim | 9/1996 | | |
| | 24 | CA | 2 090 904 | A1 F. Hoffman-La Roche | 9/1993 | | |
| | 25 | JP | 238,166 | A Mitsubishi Corp. | 1988 | abstract | |
| | 26 | JP | 6-41183 | A2 Mitsubishi Corp. | 1994 | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box

MAY 25 2011

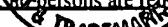
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Do not send information to this address.
Use the collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

| | | | | | |
|--|---|----|----|---------------------------------------|---|
|  INFORMATION DISCLOSURE STATEMENT BY APPLICANT <p>(use as many sheets as necessary)</p> | | | | <i>Complete if Known</i> | |
| | | | | Application Number 09/626,096 | Filing Date July 26, 2000 |
| | | | | First Named Inventor Umek, R. | Group Art Unit 1645 |
| | | | | Examiner Name Not Yet Assigned | Attorney Docket Number A-68271-2/RFT/RMS/RMK |
| Sheet | 2 | of | 11 | | |

RECEIVED

U.S. PATENT DOCUMENTS

| U.S. PATENT DOCUMENTS | | | | | | |
|-----------------------|-----------------------|----------------------|--------------------------------------|---|---|--|
| Examiner Initials* | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
| | | Number | Kind Code ² (if known) | | | |
| 27 | 5,328,824 | | | Ward et al. | 7/1994 | |
| 28 | 5,403,451 | | | Riviello et al. | 4/1995 | |
| 29 | 5,449,767 | | | Ward et al. | 9/1995 | |
| 30 | 5,472,881 | | | Beebe et al. | 12/1995 | |
| 31 | 5,476,928 | | | Ward et al. | 12/1995 | |
| 32 | 5,552,270 | | | Khrapko et al. | 9/1996 | |
| 33 | 5,565,552 | | | Magda et al. | 10/1996 | |
| 34 | 5,573,906 | | | Bannwarth et al. | 11/1996 | |
| 35 | 5,591,578 | | | Meade et al. | 1/1997 | |
| 36 | 5,595,908 | | | Fawcett et al. | 1/1997 | |
| 37 | 5,601,982 | | | Sargent et al. | 2/1997 | |
| 38 | 5,620,850 | | | Bamdad et al. | 4/1997 | |
| 39 | 5,705,348 | | | Meade et al. | 1/1998 | |
| 40 | 5,741,700 | | | Ershov et al. | 4/1998 | |
| 41 | 5756,050 | | | Ershov et al. | 5/1998 | |
| 42 | 5,770,369 | | | Meade et al. | 6/1998 | |
| 43 | 5,770,721 | | | Ershov et al. | 6/1998 | |
| 44 | 5,776,672 | | | Hashimoto et al. | 7/1998 | |

FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
|--------------------|-----------------------|-------------------------|---------------------|---|--|---|----------------|
| | | Office ³ | Number ⁴ | | | | |
| | 45 | WO | 86/05815 | A1 | Genetics International Inc. | 3/1985 | |
| | 46 | WO | 90/05732 | A1 | Columbia Univ. | 5/1990 | |
| | 47 | WO | 92/10757 | A1 | Boehringer Mannheim | 6/1992 | |
| | 48 | WO | 93/22678 | A2 | Mass. Inst. of Technology | 11/1993 | |
| | 49 | WO | 93/10267 | A1 | IGEN, Inc. | 5/1993 | |
| | 50 | WO | 94/22889 | A1 | Cis Bio International | 10/1994 | |
| | 51 | WO | 95/15971 | A2 | Calif. Inst. of Technology | 6/1995 | |
| | 52 | WO | 96/40712 | A1 | Calif. Inst. of Technology | 12/1996 | |

| | | | |
|-----------------------|--|--------------------|--|
| Examiner Signature | | Date Considered | |
|-----------------------|--|--------------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

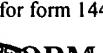
Please type a plus sign (+) inside this box →

NOV 03 2003

PTO/SB/8A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
A collection of information unless it contains a valid OMB control number.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | |
|--|---|-----------------------|----|------------------------|
| Substitute for form 1449A/PTO | | TECH CENTER 1800/2000 | | Complete if Known |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <small>(use as many sheets as necessary)</small> | | | | |
|  | | | | |
| Page | 3 | of | 11 | |
| | | | | Application Number |
| | | | | 09/626,096 |
| | | | | Filing Date |
| | | | | July 26, 2000 |
| | | | | First Named Inventor |
| | | | | Umek, R. |
| | | | | Group Art Unit |
| | | | | 1645 |
| | | | | Examiner Name |
| | | | | Not Yet Assigned |
| | | | | Attorney Docket Number |
| | | | | A-68271-2/RFT/RMS/RMK |

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
|--------------------|-----------------------|-------------------------|---------------------|---|---|--|----------------|
| | | Office ³ | Number ⁴ | | | | |
| | 59 | WO | 97/01646 | A2 | Univ. of N. Carolina | 1/1997 | |
| | 60 | WO | 97/44651 | A1 | AU Membrane and Biotech. | 11/1997 | |
| | 61 | WO | 97/27329 | A1 | Univ. of Chicago | 7/1997 | |
| | 62 | WO | 98/20162 | A2 | Clinical Micro Systems | 5/1998 | |
| | 63 | WO | 98/27229 | A1 | Univ. of Chicago | 6/1998 | |
| | 64 | WO | 98/28444 | A2 | Univ. of Chicago | 7/1998 | |
| | 65 | WO | 98/35232 | A2 | Univ. of N. Carolina | 8/1998 | |
| | 66 | WO | 98/57159 | A1 | Clinical Micro Systems | 6/1997 | |
| | 67 | WO | 99/37819 | A2 | Clinical Micro Systems | 1/1998 | |
| | 68 | WO | 99/67425 | A2 | Clinical Micro Systems | 12/1999 | |
| | 69 | WO | 99/14596 | A1 | AB Sangtec Medical | 3/1999 | |

| | | | |
|-----------------------|--|--------------------|--|
| Examiner Signature | | Date Considered | |
|-----------------------|--|--------------------|--|

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231.
DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box

NOV 03 2003

PTO/SB/8B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for Form 1449B
& TRADEMARKSINFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 4 of 11

Complete if Known

| | |
|------------------------|-----------------------|
| Application Number | 09/626,096 |
| Filing Date | July 26, 2000 |
| First Named Inventor | Umek, R. |
| Group Art Unit | 1645 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | A-68271-2/RFT/RMS/RMK |

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|--------------------|-----------------------|---|----------------|
| | 70 | Aizawa et al., "Integrated Molecular Systems for Biosensors," Sensors and Acuators B, B@\$ (Nos 1/3) Part 1:1-5 (March 1995). | |
| | 71 | Albers et al., "Design of Novel Molecular Wires for Realizing Long-Distance Electron Transfer," Biochemistry and Bioenergetics, 42:25-33 (1997). | |
| | 72 | Alleman, K.S., et al., "Electrochemical Rectification at a Monolayer-Modified Electrode," J. Phys. Chem., 100:17050-17058 (1996). | |
| | 73 | Arkin et al. "Evidence for Photoelectron Transfer Through DNA Intercalation," J. Inorganic Biochem. Abstracts, 6th International Conference on Bioinorganic Chemistry, 51(1) & (2):526 (1993). | |
| | 74 | Barisci et al., "Conducting Polymer Sensors," TRIP, 4(9):307-311 (1996). | |
| | 75 | Baum, R. M., "Views on Biological, Long-Range Electron Transfer Stir Debate," C&EN, pp 20-23 (1993). | |
| | 76 | Bechtold, R., et al., "Ruthenium-Modified Horse Heart Cytochrome c: Effect of pH and Ligation on the Rate of Intramolecular Electron Transfer between Ruthenium(II) and Heme(III)," J. Phys. Chem., 90(16):3800-3804 (1986). | |
| | 77 | Bidan, "Electroconducting conjugated polymers: new sensitive matrices to build up chemical or electrochemical sensors. A Review..," Sensors and Actuators, B6:45-56 (1992). | |
| | 78 | Biotechnology and Genetics: Genetic Screening Integrated Circuit," The Economist (February 25-March 3, 1995). | |
| | 79 | Blonder et al., "Three-dimensional Redox-Active layered Composites of Au-Au, Ag-Ag and Au-Ag Colloids," Chem. Commun. 1393-1394 (1998). | |
| | 80 | Boguslavsky, L. et al., "Applications of redox polymers in biosensors," Solid State Ionics, 60:189-197 (1993). | |
| | 81 | Bowler, B. E., et al., "Long-Range Electron Transfer in Donor (Spacer) Acceptor Molecules and Proteins," Progress in Inorganic Chemistry: Bioinorganic Chemistry, 38:259-322 (1990). | |
| | 82 | Brun, A. M., et al., "Photochemistry of Intercalated Quaternary Diazaaromatic Salts," J. Am. Chem. Soc., 113:8153-8159 (1991). | |
| | 83 | Bumm, et al., "Are Single Molecular Wires Conducting?," Science 271:1705-1707 (1996). | |
| | 84 | Cantor, C.R. et al., "Report on the Sequencing by Hybridization Workshop," Genomics, 13:1378-1383 (1992). | |
| | 85 | Carr et al., "Novel Electrochemical Sensors for Neutral Molecules," Chem. Commun., 1649-1650 (1997). | |
| | 86 | Carter et al., "Voltammetric Studies of the Interaction of Metal Chelates with DNA. 2. Tris-Chelated Complexes of Cobalt(III) and Iron(II) with 10-Phenanthroline and 2,2'-Bipyridine," J. Am. Chem. Soc., 11:8901-8911 (1989). | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box →

NOV 03 2003

PTO/SB/8B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO

TECH CENTER 1600/2000

Complete if Known

| | |
|------------------------|-----------------------|
| Application Number | 09/626,096 |
| Filing Date | July 26, 2000 |
| First Named Inventor | Umek, R. |
| Group Art Unit | 1645 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | A-68271-2/RFT/RMS/RMK |

Sheet 5 of 11

MAY 25 2001
(use as many sheets as necessary)

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | |
|---|-----------------------|--|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
| | 87 | Chang, I-Jy, et al., "High-Driving-Force Electron Transfer in Metalloproteins: Intramolecular Oxidation of Ferrocytocrome c by Ru(2,2'-bpy) ₂ (im)(His-33) ³⁺ ," <i>J. Am. Chem. Soc.</i> , 113:7056-7057 (1991). |
| | 88 | Chidsey, et al., "Coadsorption of Ferrocene-Terminated and Unsubstituted Alkanethiols on Gold" Electroactive Self-Assembled Monolayers," <i>J. Am. Chem. Soc.</i> , 112:4301-4306 (1990). |
| | 89 | Chidsey, C.E.D., et al., "Free Energy and Temperature Dependence of Electron Transfer at the Metal Electrolyte Interface," <i>Science</i> , 251:919-922 (1991). |
| | 90 | Chrisey, et al., "Covalent attachment of synthetic DNA to self-assembled monolayer films," <i>Nucleic Acids Research</i> , 24(15):3031-3039 (1996). |
| | 91 | Clery, "DNA Goes Electric," <i>Science</i> , 267:1270 (1995). |
| | 92 | <i>Commerce Business Daily Issue</i> of September 26, 1996 PSA#1688. |
| | 93 | Davis, L. M., et al., "Electron Donor Properties of the Antitumour Drug Amsacrine as Studied by Fluorescence Quenching of DNA-Bound |
| | 94 | Davis, L. M., et al., "Elements of biosensor construction," <i>Enzyme Microb. Technol.</i> 17:1030-1035 (1995). |
| | 95 | Degani et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 2. Methods for Bonding Electron-Transfer Relays to Glucose Oxidase and D-Amino-Acid Oxidase," <i>J. Am. Chem. Soc.</i> 110:2615-2620 (1988). |
| | 96 | Degani, Y., et al., "Electrical Communication between Redox Centers of Glucose Oxidase and Electrodes via Electrostatically and Covalently Bound Redox Polymers," <i>J. Am. Chem. Soc.</i> , 111:2357-2358 (1989). |
| | 97 | Degani, Y., et al., "Direct Electrical Communication between Chemically Modified Enzymes and Metal Electrodes. 1. Electron Transfer from Glucose Oxidase to Metal Electrodes via Electron Relays, Bound Covalently to the Enzyme," <i>J. Phys. Chem.</i> , 91(6):1285-1288 (1987). |
| | 98 | Deinhammer, R.S., et al., "Electronchemical Oxidation of Amine-containing compounds: A Route to the Surface Modification of glassy carbon electrodes," <i>Langmuir</i> , 10:1306-1313 (1994). |
| | 99 | Dreyer, G. B., et al., "Sequence-specific cleavage of single-stranded DNA: Oligodeoxynucleotide-EDTA·Fe(II)," <i>Proc. Natl. Acad. Sci. USA</i> , 82:968-972 (1985). |
| | 100 | Drobyshev, A. et al., "Sequence Analysis by Hybridization with Oligonucleotide Microchip: Identification of β-thalassemia Mutations," <i>Gene</i> , 188:45-52 (1997). |
| | 101 | Dubiley, S. et al., "Fractionation, phosphorylation and Ligation on Oligonucleotide Microchips to Enhance Sequencing by Hybridization," <i>Nucleic Acids Research</i> , 25(12):2259-2265 (1997). |
| | 102 | Durham, B., et al., "Electron-Transfer Kinetics of Singly Labeled Ruthenium(II) Polypyridine Cytochrome c Derivatives," <i>Advances in Chemistry Series</i> , 226:181-193 (1990). |
| | | |
| | | |
| | | |
| | | |
| | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box → NOV 03 2003 Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|--|--|------------------------|--|------------------------|-----------------------|
| Substitute for form 1449B/PTO | | TECH CENTER 1600/16000 | | Complete if Known | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Application Number | 09/626,096 |
| (use as many sheets as necessary) | | | | Filing Date | July 26, 2000 |
| <i>MAY 25 2001</i> | | | | First Named Inventor | Umek, R. |
| SEARCHED & TRADEMARK OFFICE | | | | Group Art Unit | 1645 |
| SHEET 6 OF 11 | | | | Examiner Name | Not Yet Assigned |
| | | | | Attorney Docket Number | A-68271-2/RFT/RMS/RMK |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | | | |
|---|-----------------------|---|--|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | | |
| | 103 | Durham, B., et al., "Photoinduced Electron-Transfer Kinetics of Singly Labeled Ruthenium Bis(bipyridin) Dicarboxybipyridine Cytochrome c Derivatives," <i>Biochemistry</i> , 28:8659-8665 (1989). | | | T ² |
| | 104 | Elghanian et al., "Selective Colorimetric Detection of Polynucleotides Based on the Distance-Dependent Optical Properties of Gold Nanoparticles," <i>Science</i> , 277:1078-1081 (1997). | | | |
| | 105 | Elias, H., et al., "Electron-Transfer Kinetics of Zn-Substituted Cytochrome c and Its Ru(NH ₃) ₅ (Histidine-33) Derivative," <i>J. Am. Chem. Soc.</i> , 110:429-434 (1988). | | | |
| | 106 | Farver, O., et al., "Long-range intramolecular electron transfer in azurins," <i>Proc. Natl. Acad. Sci. USA</i> , 86:6968-6972 (1989). | | | |
| | 107 | Fotin, A. et al., "Parallel Thermodynamic Analysis of Duplexes on Oligodeoxyribonucleotide Microchips," <i>Nucleic Acids Research</i> , 216(6):1515-1521 (1998). | | | |
| | 108 | Fox, M. A., et al., "Light-Harvesting Polymer Systems," <i>C&EN</i> , pages 38-48 (March 15, 1993). | | | |
| | 109 | Fox, L. S., et al., "Gaussian Free-Energy Dependence of Electron-Transfer Rates in Iridium Complexes," <i>Science</i> , 247:1069-1071 (1990). | | | |
| | 110 | Francois, J-C., et al., "Periodic Cleavage of Poly(dA) by Oligothymidylates Covalently Linked to the 1,10-Phenanthroline-Copper Complex," <i>Biochemistry</i> , 27:2272-2276 (1988). | | | |
| | 111 | Friedman, A. E., et al., "Molecular 'Light Switch' for DNA: Ru(bpy) ₂ (dppz) ²⁺ ," <i>J. Am. Chem. Soc.</i> , 112:4960-4962 (1990). | | | |
| | 112 | Fromherz, P., et al., "Photoinduced Electron Transfer in DNA Matrix from Intercalated Ethidium to Condensed Methylviologen," <i>J. Am. Chem. Soc.</i> , 108:5361-5362 (1986). | | | |
| | 113 | Gardner, et al., "Application of conducting polymer technology in microsystems," <i>Sensors and Actuators</i> , A51:57-66 (1995). | | | |
| | 114 | Gregg, B. A., et al., "Redox Polymer Films Containing Enzymes. 1. A Redox-Conducting Epoxy Cement: Synthesis, Characterization, and Electrocatalytic Oxidation of Hydroquinone," <i>J. Phys. Chem.</i> , 95:5970-5975 (1991). | | | |
| | 115 | Gregg, B. A., et al., "Cross-linked redox gels containing glucose oxidase for amperometric biosensor applications," <i>Anal. Chem.</i> , 62:258-263 (1990). | | | |
| | 116 | Guschin, D. et al., "Manual Manufacturing of Oligonucleotide, DNA, and Protein Microchips," <i>Analytical Biochemistry</i> , 250:203-211 (1997). | | | |
| | 117 | Guschin, D. et al., "Oligonucleotide Microchips as Genosensors for Determinative and Environmental Studies in Microbiology," 63(6):2397-2402 (1997). | | | |
| | 118 | Hashimoto, et al., "Sequence-Specific Gene Detection with a Gold Electrode Modified with DNA Probes and an Electrochemically Active Dye," <i>Anal. Chem.</i> 66:3830-3833 (1994). | | | |
| | 119 | Hegner, et al., "Immobilizing DNA on gold via thiol modification for atomic force microscopy imaging in buffer solutions," <i>FEBS</i> 336(3):452-456 (1993). | | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box → +

NOV 03 2003

PTO/SB/8B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|--|--|------------------------|-----------------------|--------------------|------------|
| Substitute for form 1449B/PTO | | TECH CENTER 1600/2000 | | Complete if Known | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | | | Application Number | 09/626,096 |
| MAY 25 2001 | | Filing Date | July 26, 2000 | | |
| SEARCHED & TRADEMARK OFFICE | | First Named Inventor | Umek, R. | | |
| SPEECH | | Group Art Unit | 1645 | | |
| 7 | | Examiner Name | Not Yet Assigned | | |
| of 11 | | Attorney Docket Number | A-68271-2/RFT/RMS/RMK | | |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | | | |
|---|-----------------------|---|--|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | | |
| | 12 | Heller, A., "Electrical Wiring of Redox Enzymes," <i>Acc. Chem. Res.</i> , 23:128-134 (1990). | | | T ² |
| | 121 | Heller et al., "Fluorescent Energy Transfer Oligonucleotide Probes," <i>Fed. Proc.</i> 46(6):1968 (1987) Abstract No. 248. | | | |
| | 122 | Heller, A., et al., "Amperometric biosensors based on three-dimensional hydrogel-forming epoxy networks," <i>Sensors and Actuators</i> , 13-14:180-183 (1993). | | | |
| | 123 | Ho "DNA-Mediated Electron Transfer and Application to 'Biochip' Development," <i>Abstract. Office of Naval Research (Report Date: July 25, 1991) 1-4, RR04106.</i> | | | |
| | 124 | Hobbs et al., "Polynucleotides Containing 2'-Amino-2'-deoxyribose and 2'-Azido-2'-deoxyriose," <i>Biochemistry</i> , 12(25):5138-5145 (1973). | | | |
| | 125 | Hsung, et al., "Thiophenol Protecting Groups for the Palladium-Catalyzed Heck Reaction: Efficient Syntheses of Conjugated Arylthiols," <i>Tetrahedron Letters</i> . 36(26):4525-4528 (1995). | | | |
| | 126 | Hsung, et al., "Synthesis and Characterization of Unsymmetric Ferrocene-Terminated Phenylethynyl Oligomers," <i>Organometallics</i> , 14:4808-4815 (1995). | | | |
| | 127 | Jenkins et al., "A Sequence-Specific Molecular Light Switch: Tebhering of an Oligonucleotide to a Dipyridophenazine Complex of Ruthenium (II)," <i>J. Am. Chem. Soc.</i> , 114:8736-8738 (1992). | | | |
| | 128 | Johnston et al., "Trans-Dioxorhenium(V)-Mediated Electrocatalytic Oxidation of DNA at Indium Tin-Oxide Electrodes: Voltammetric Detection of DNA Cleavage in Solution," <i>Inorg. Chem.</i> , 33:6388-6390 (1994). | | | |
| | 129 | Kamat et al., <i>J. Phys. chem.</i> , 93(4):1405-1409 (1989). Abstract | | | |
| | 130 | Katritzky, et al., "Pyridylethylation - A New Protection Method for Active Hydrogen Compounds," <i>Tetrahedron Letters</i> , 25(12):1223-1226 (1984). | | | |
| | 131 | Kelley, S.O. and J.K. Barton, "Electrochemistry of Methylene Blue Bound to a DNA-Modified Electrode," <i>Bioconjugate Chem.</i> , 8:31-37 (1997). | | | |
| | 132 | Kojima et al., "A DNA Probe of Ruthenium Bipyridine Complex Using Photocatalytic Activity," <i>Chemistry Letter</i> , pp 1889-1982 (1989). | | | |
| | 133 | Korri-Youssoufi et al., "Toward Bioelectronics: Specific DNA Recognition Based on an Oligonucleotide-Functionalized Polypyrrole," <i>J. Am. Chem. Soc.</i> , 119(31):7388-7389 (1997). | | | |
| | 134 | Laviron, E., "A.C. Polarography and Faradaic Impedance of Strongly Adsorbed Electroactive Species. Part I: Theoretical and Experimental Study of a Quasi-Reversible Reaction in the Case of a Langmuir Isotherm," <i>J. Electroanal. Chem.</i> , 97:135-149 (1979). | | | |
| | 135 | Laviron, E., "A.C. Polarography and Faradaic Impedance of Strongly Adsorbed Electroactive Species. Part III: Theoretical Complex Plane Analysis for a Surface Redox Reaction," <i>J. Electroanal. Chem.</i> , 105:35-42 (1979). | | | |
| | 136 | Lee, et al., "Direct Measurement of the Forces Between Complementary Strands of DNA," <i>Science</i> , 266:771-773 (1994). | | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box → +

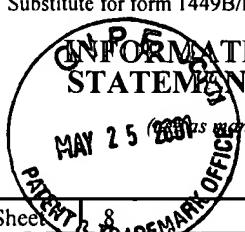
NOV 03 2003

PTO/SB/8B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|--|-------|--|--|----------------------|------------------|
| Substitute for form 1449B/PTO | | TECH CENTER 1000/2000 | | Complete if Known | |
|  INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Application Number | 09/626,096 |
| | | | | Filing Date | July 26, 2000 |
| | | | | First Named Inventor | Umek, R. |
| | | | | Group Art Unit | 1645 |
| | | | | Examiner Name | Not Yet Assigned |
| Sheet 2 | of 11 | Attorney Docket Number A-68271-2/RFT/RMS/RMK | | | |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | | | |
|---|-----------------------|---|--|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | | |
| | 137 | Lenhard, J.R., et al., "Part VII Covalent Bonding of a Reversible- Electrode Reactant to Pt Electrodes Using an organosilane Reagent" <i>J. Electronal. Chem.</i> , 78:195-201 (1977). | | | T ² |
| | 138 | Lincoln et al., "Shorting Circuiting the Molecular Wire," <i>J. Am. Chem. Soc.</i> , 119(6):1454-1455 (1997). | | | |
| | 139 | Lipkin "Identifying DNA by the Speed of Electrons," <i>Science News</i> , 147(8):117 (1995). | | | |
| | 140 | Livshits, M. et al., "Theoretical Analysis of the Kinetics of DNA Hybridization with Gel-Immobilized Oligonucleotides," <i>Biophysical Journal</i> , 71:2795-2801 (1996). | | | |
| | 141 | Maskos, et al., "Oligonucleotide hybridisations on glass supports: a novel linker for oligonucleotide synthesis and hybridisation properties of oligonucleotides synthesised <i>in situ</i> ," <i>Nucleic Acids Research</i> , 20(7):1679-1684 (1992). | | | |
| | 142 | McGee, et al., "2'-Amino-2'-deoxyuridine via an Intramolecular Cyclization of a Trichloroacetimidate," <i>J. Org. Chem.</i> , 61:781-785 (1996). | | | |
| | 143 | Meade, T. J., et al., "Electron Transfer through DNA: Site-Specific Modification of Duplex DNA with Ruthenium Donors and Acceptors," <i>Angew Chem. Int. Ed. Engl.</i> , 34:352-354 (1995). | | | |
| | 144 | Meade, T. J., "Driving-Force Effects on the Rate of Long-Range Electron Transfer in Ruthenium-Modified Cytochrome c," <i>J. Am. Chem. Soc.</i> , 111:4353-4356 (1989). | | | |
| | 145 | Mestel, "Electron Highway' Points to Identity of DNA," <i>New Scientist</i> , p. 21 (1995). | | | |
| | 146 | Millan, K.M. and Mikkelsen, S.R., "Sequence-Selective Biosensor for DNA Based on Electroactive Hybridization Indicators," <i>Anal. Chem.</i> , 65:2317-2323 (1993). | | | |
| | 147 | Millan, K.M., et al., "Covalent Immobilization of DNA onto Glassy Carbon Electrodes," <i>Electroanalysis</i> , 4(10):929-932 (1992). | | | |
| | 148 | Millan, et al., "Voltammetric DNA Biosensor for Cystic Fibrosis Based on a Modified Carbon Paste Electrode," <i>Anal. Chem.</i> , 66:2943-2948 (1994). | | | |
| | 149 | Miller, C., "Absorbed ω-Hydroxy Thiol Monolayers on Gold Electrodes: Evidence for Electron Tunneling to Redox Species in Solution," <i>J. Phys. Chem.</i> , 95:877-886 (1991). | | | |
| | 150 | Mirkin et al., "A DNA-based Method for Ratioally Assembling Nonoparticles into Macroscopic Materials," <i>Nature</i> , 382:607-609 (1996). | | | |
| | 151 | Mirzabekov, A. et al., "Dna Sequencing by Hybridization - a Megasequencing Method and a Diagnostic Tool," <i>Tibtech</i> , 12:27-32 (1994). | | | |
| | 152 | Mitchell et al., "Programmed Assembly of DNA Functionalized Quantum Dots," <i>J. Am. Chem. Soc.</i> , 121:8122-8123 (1999). | | | |
| | 153 | Mucic et al., "Synthesis and Characterization of DNA with Ferrocenyl Groups Attached to their 5'-Termini: Electrochemical Characterization of a Redox-Active Nucleotide Monolayer," <i>Chem. Commun.</i> , pp. 555-557 (1996). | | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

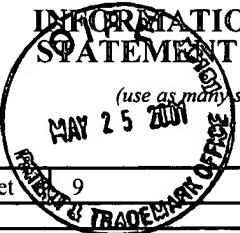
Please type a plus sign (+) inside this box →

PTO/SB/8B (08-00)

NOV 03 2003

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | |
|---|------------------------|-----------------------|------------------|
| Substitute for form 1449B/PTO | | Complete if Known | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>  | | Application Number | 09/626,096 |
| | | Filing Date | July 26, 2000 |
| | | First Named Inventor | Umek, R. |
| | | Group Art Unit | 1645 |
| | | Examiner Name | Not Yet Assigned |
| Sheet 9 of 11 | Attorney Docket Number | A-68271-2/RFT/RMS/RMK | |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
| | 154 | Mucic et al., "DNA-Directed Synthesis of Binary Nanoparticle Network Materials," <i>J. Am. Chem. Soc.</i> , 120:12674-12675 (1998). | |
| | 155 | Murphy, C. J., et al., "Long-Range Photoinduced Electron Transfer Through a DNA Helix," <i>Science</i> , 262:1025-1029 (1993). | |
| | 156 | Orellana, G., et al., "Photoinduced Electron Transfer Quenching of Excited Ru(II) Polypyridyls Bound to DNA: The Role of the Nucleic Acid Double Helix," <i>Photochemistry and Photobiology</i> , 54(4):499-509 (1991). | |
| | 157 | Palecek, "From Polarography of DNA to Microanalysis with Nucleic Acid-Modified Electrodes," <i>Electroanalysis</i> , 8(1):7-14 (1996). | |
| | 158 | Parinov, S., "DNA Sequencing by Hybridization to Microchip octa- and Decanucleotides Extended by Stacked Pentanucleotides," <i>Nucleic Acids Research</i> , 24(15):2998-3004 (1996). | |
| | 159 | Paterson, "Electric Genes: Current Flow in DNA Could Lead to Faster Genetic Testing," <i>Scientific American</i> , 33 (May 1995). | |
| | 160 | Proudnikov, D. "Immobilization of DNA in Polyacrylamide Gel for the manufacture of DNA and DNA-Oligonucleotide Microchips," <i>Analytical Biochemistry</i> , 259:34-41 (1998). | |
| | 161 | Proudnikov, D. et al., "Chemical Methods of DNA and RNA Fluorescent Labeling," <i>Nucleic Acids Research</i> , 24(22):4535-4542 (1996). | |
| | 162 | Purugganan, M. D., et al., "Accelerated Electron Transfer Between Metal Complexes Mediated by DNA," <i>Science</i> , 241:1645-1649 (1988). | |
| | 163 | Reimers et al., "Toward Efficient Molecular Wires and Switches: the Brooker Ions," <i>Biosystems</i> , 35:107-111 (1995). | |
| | 164 | Rhodes, D. And A. Klug, "Helical Periodicity of DNA Determined by Enzyme Digestion," <i>Nature</i> , 286:573-578 (1980). | |
| | 165 | Risser, S. M., et al., "Electron Transfer in DNA: Predictions of Exponential Growth and Decay of Coupling with Donor-Acceptor Distance," <i>J. Am. Chem. Soc.</i> , 115(6):2508-2510 (1993). | |
| | 166 | Sato, Y., et al., "Unidirectional Electron Transfer at Self-Assembled Monolayers of 11-Ferrocenyl-1-undecanethiol on Gold," <i>Bull. Chem. Soc. Jpn.</i> , 66(4):1032-1037 (1993). | |
| | 167 | Satyanarayana, S., et al., "Neither Δ- nor Λ-Tris(phenanthroline)ruthenium(II) Binds to DNA by Classical Intercalation," <i>Biochemistry</i> , 31(39):9319-9324 (1992). | |
| | 168 | Schreiber, et al., "Bis(purine) Complexes of <i>trans</i> -a ₂ Pt ^{II} : Preparation and X-ray Structures of Bis(9-methyladenine) and Mixed 9-Methyladenine, 9-Methylguanine Complexes and Chemistry Relevant to Metal-Modified Nucleobase Triples and Quartets," <i>J. Am. Chem. Soc.</i> , 118:4124-4132 (1996). | |
| | 169 | Schuhmann, W., et al., "Electron Transfer between Glucose Oxidase and Electrodes via Redox Mediators Bound with Flexible Chains to the Enzyme Surface," <i>J. Am. Chem. Soc.</i> , 113:1394-1397 (1991). | |
| | | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box → +

PTO/SB/8B (08-00)

NOV 03 2003

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | |
|-------------------------------|-------|--|------------------|
| Substitute for form 1449B/PTO | | Complete if Known | |
| TECH CENTER 1600/2000 | | Application Number | 09/626,096 |
| | | Filing Date | July 26, 2000 |
| | | First Named Inventor | Umek, R. |
| | | Group Art Unit | 1645 |
| | | Examiner Name | Not Yet Assigned |
| Sheet 10 | of 11 | Attorney Docket Number A-68271-2/RFT/RMS/RMK | |

MAY 25 2004 (use summary sheets as necessary)

PATENT & TRADEMARK OFFICE

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|--------------------|-----------------------|--|----------------|
| | 170 | Schumm, et al., "Iterative Divergent/Convergent Approach to Linear Conjugated Oligomers by Successive Doubling of the Molecular Length: A Rapid Route to a 128 Å-Long Potential Molecular Wire," <i>Angew. Chem. Int. Ed. Engl.</i> , 33(11):1360-1363 (1994). | |
| | 171 | Sigal et al., "A Self-Assembled Monolayer for the Binding and Study of Histidine-Tagged Proteins by Surface Plasmon Resonance," <i>Anal. Chem.</i> , 68(3):490-497 (1996). | |
| | 172 | Sloop et al., "Metalloorganic labels for DNA sequencing and mapping," <i>New. J. Chem.</i> , 18: 317-326 (1994). | |
| | 173 | Southern, et al., "Arrays of complementary oligonucleotides for analysing the hybridisation behaviour of nucleic acids," <i>Nucleic Acids Research</i> , 22(8):1368-1373 (1994). | |
| | 174 | Storhoff et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticles Probes," <i>J. Am. Chem. Soc.</i> , 120:1959-1964 (1998). | |
| | 175 | Strobel, S. A., et al., "Site-Specific Cleavage of a Yeast Chromosome by Oligonucleotide-Directed Triple-Helix Formation," <i>Science</i> , 249:73-75 (1990). | |
| | 176 | Su, et al., "Interfacial Nucleic Acid Hybridization Studied by Random Primer ³² P Labelling and Liquid-Phase Acoustic Network Analysis," <i>Analytical Chemistry</i> , 66(6):769-777 (1994). | |
| | 177 | Telser, J., et al., "DNA Oligomers and Duplexes Containing a Covalently Attached Derivative of Tris(2,2'-bipyridine)ruthenium(II): Synthesis and Characterization by Thermodynamic and Optical Spectroscopic Measurements," <i>J. Am. Chem. Soc.</i> , 111:7221-7226 (1989). | |
| | 178 | Telser, J., et al., "DNA Duplexes Covalently Labeled at Two Sites: Synthesis and Characterization by Steady-State and Time-Resolved Optical Spectroscopies," <i>J. Am. Chem. Soc.</i> , 111:7226-7232 (1989). | |
| | 179 | Timofeev, E. et al., "Regioselective Immobilization of Short Oligonucleotides to Acrylic Copolymer Gel," <i>Nucleic Acids Research</i> , 24(16): 3142-3148 (1996). | |
| | 180 | Timofeev, E. et al., "Methidium Intercalator Inserted into Synthetic Oligonucleotides," <i>Tetrahedron Letters</i> , 37(47):8467-8470 (1996). | |
| | 181 | Tour, "Conjugated Macromolecules of Precise Length and Constitution. Organic Synthesis for the Construction of Nanoarchitectures," <i>Chem. Rev.</i> , 96:537-553 (1996). | |
| | 182 | Tour, et al., "Self-Assembled Monolayers and Multilayers of Conjugated Thiols, α - ω -Dithiols, and Thioacetyl-Containing Adsorbates. Understanding Attachments between Potential Molecular Wires and Gold Surfaces," <i>J. Am. Chem. Soc.</i> , 117:9529-9534 (1995). | |
| | 183 | Tullius, T.D. and B.A. Dombroski, "Iron(II) EDTA Used to Measure the Helical Twist Along Any DNA Molecule," <i>Science</i> , 230:679-681 (1985). | |
| | 184 | Turro, N. J., et al., "Molecular Recognition and Chemistry in Restricted Reaction Spaces. Photophysics and Photoinduced Electron Transfer on the Surfaces of Micelles, Dendrimers, and DNA," <i>Acc. Chem. Res.</i> , 24:332-340 (1991). | |

| | | |
|--------------------|--|-----------------|
| Examiner Signature | | Date Considered |
|--------------------|--|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

Please type a plus sign (+) inside this box → +

NOV 03 2003

PTO/SB/8B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | |
|--|---|-----------------------|----|------------------------|
| Substitute for form 1449B/PTO | | TECH CENTER 1600/2900 | | Complete if Known |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | Application Number | | 09/626,096 |
| | | Filing Date | | July 26, 2000 |
| | | First Named Inventor | | Umek, R. |
| | | Group Art Unit | | 1645 |
| | | Examiner Name | | Not Yet Assigned |
| Sheet | 1 | of | 11 | Attorney Docket Number |
| A-68271-2/RFT/RMS/RMK | | | | |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | | |
|---|-----------------------|---|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | |
| | 185 | Turro, N., et al. "Photoelectron Transfer Between Molecules Adsorbed in Restricted Spaces," <i>Photochem. Convers. Storage Sol. Energy, Proc. Int. Conf.</i> , 8th, pp 121-139 (1990). | | T ² |
| | 186 | Uosake, K., et al., "A Self-Assembled Monolayer of Ferrocenylalkane Thiols on Gold as an Electron Mediator for the Reduction of Fe(III)-EDTA in Solution," <i>Electrochimica Acta.</i> , 36(11/12):1799-1801 (1991). | | |
| | 187 | Van Ness, J., et al., "A Versatile Solid Support System for Oligodeoxynucleotide Probe-Based Hybridization Assays," <i>Nucleic Acids Research</i> , 19(12):3345-3350 (1991). | | |
| | 188 | Velev et al., "In Situ Assembly of Colloidal Particles into Miniaturized Biosensors," <i>The ACS Journal of Surfaces and Colloids, Langmuir</i> , 15(11):3693-3698 (1999). | | |
| | 189 | Watson et al., "Hybrid Nanoparticles with Block Copolymer Shell Structures," <i>J. Am. Chem. Soc.</i> , 121:462-463 (1999). | | |
| | 190 | Weber, et al., "Voltammetry of Redox-Active Groups Irreversibly Adsorbed onto Electrodes. Treatment Using the Marcus Relation between Rate and Overpotential," <i>Anal. Chem.</i> , 66:3164-3172 (1994). | | |
| | 191 | Williams, et al., "Studies of oligonucleotide interactions by hybridisation to arrays: the influence of dangling ends on duplex yield," <i>Nucleic Acids Research</i> , 22(8):1365-1367 (1994). | | |
| | 192 | Winkler, J. R., et al., "Electron Transfer in Ruthenium-Modified Proteins," <i>Chem. Rev.</i> , 92:369-379 (1992). | | |
| | 193 | Xu, et al., "Immobilization and Hybridization of DNA on an Aluminum(III) Alkanebisphosphonate Thin Film with Electrogenerated Chemiluminescent Detection," <i>J. Am. Chem. Soc.</i> , 117:2627-2631 (1995). | | |
| | 194 | Xu, et al., "Immobilization of DNA on an Aluminum(III) alkaneobisphosphonate Thin Film with Electrogenerated Chemiluminescent Detection," <i>J. Am. Chem. Soc.</i> , 116:8386-8387 (1994). | | |
| | 195 | Yang, et al., "Growth and Characterization of Metal(II) Alkanebisphosphonate Multilayer Thin Films on Gold Surfaces," <i>J. Am. Chem. Soc.</i> , 115:11855-11862 (1993). | | |
| | 196 | Yershov, G. et al., "DNA Analysis and Diagnostics on Oligonucleotide Microchips," <i>Proc. Natl. Acad. Sci. USA</i> , 93:4913-4918 (1996). | | |
| | 197 | Zhou, et al., "Fluorescent Chemosensors Based on Energy Migration in Conjugated Polymers: The Molecular Wire Approach to Increased Sensitivity," <i>J. Am. Chem. Soc.</i> , 117:12593-12602 (1995). | | |
| | 198 | Baner et al., "Signal amplification of padlock probes by rolling circle replication," <i>Nucleic Acids Research</i> , 26(22):5073-5078 (1998). | | |
| | | | | |
| | | | | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English Language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.